

SECTION 4 | DEVELOPMENT

70. This section describes the value of future residential, commercial, and industrial development in the study area. Development may affect the species or its habitat by restricting movement via habitat fragmentation, or direct habitat loss.⁴⁸ Owners of parcels containing a federally-listed species, or designated as critical habitat for a listed species, may face certain land use restrictions that preclude, restrict, delay, or increase the cost of development on some or all of the parcel. Such outcomes may reduce the value of the property.
71. The extent to which a future development project may be impacted by lynx conservation efforts is difficult to estimate. Specifically, information is not available regarding how development activity has been affected by lynx conservation in the past, and no guidelines or standards have been developed to provide developers with information regarding how their activities may incorporate lynx conservation for future projects. For example:
- No consultations have taken place on residential development in consideration of the lynx. Only a handful of consultations associated with the permitting of commercial developments have occurred, all in Minnesota. None of these consultations resulted in project modifications; all were determined not to affect the lynx.
 - No other information is available regarding if or how private parties have modified their behavior regarding development in the past for the benefit of the lynx.
 - The LCAS does not specify conservation guidelines for the lynx and its habitat specifically related to commercial and residential developments. Regarding land ownership, the LCAS specifies as a general goal, "(w)ork toward unified management direction via habitat conservation plans, conservation easements, or agreements, and land acquisition." No parameters are specified, however, such as what size or type of development may require mitigation, or what mitigation ratios may be appropriate for the purchase of conservation easements associated with development projects.
72. Absent specific information on how residential and commercial development projects would mitigate or compensate for effects on the lynx and its habitat, this analysis does not attempt to quantify the economic impacts to development activities. *Instead, it reports the estimated full economic value of the option for future development within the study*

⁴⁸ Ruediger et. al. 2000, pg. 50.

area. The values reported in this section represent the non-timber component of land value. This information is provided for decision-makers to consider regarding the full value of potential future development within the boundaries of the study area.

73. This section also presents maps highlighting the land parcels within the study area that are identified for possible future development. These maps describe the spatial distribution of the reported values of future development at a more refined geographic scale than the subunit level.

4.1 SUMMARY OF RESULTS

74. The total value of the option for development in each subunit is estimated by multiplying acres of unimproved, developable land by a per acre value of potential future development. That is, the value of development across the study area is assumed to equal the option value to develop these acres plus the growth premium of the potential development. This analysis assumes that, absent development, the silvicultural use of the land remains. Exhibit 4-1 describes the acreage of developable land and the full value of development on those acres by subunit. The derivation of number of acres characterized as developable and per acre values of development is described in Section 4.2.
75. The total development value of the areas proposed for designation is approximately \$2.26 billion. Roughly 69.1 percent (\$1.56 billion) of this is the value of future development in Unit 2, 25.7 percent of this value (\$579 million) is for future development in Unit 1, and 5.2 percent (\$117 million) in Unit 3. Additionally, there is a total of \$1.57 million of development value for lands proposed for exclusion in Maine.
76. The total value of future development in Unit 2 is a high percentage of the total value for future development in the study area (69.1 percent) because it contains the greatest number, 551,000 (80 percent), of the acres considered developable in the proposed critical habitat area. While there are relatively few acres considered developable in Unit 1 (10,000), the average per-acre value of future development is relatively high (\$44,300 to \$57,100) as parcels zoned for development are scarce and are predominantly lakeshore properties. This information is detailed in Exhibit 4-1.

**EXHIBIT 4-1. SUMMARY OF THE VALUE OF FUTURE DEVELOPMENT WITHIN THE
PROPOSED CRITICAL HABITAT**

SUBUNIT	DEVELOPABLE ACRES	TOTAL VALUE OF FUTURE DEVELOPMENT (PRESENT VALUE, 2006\$)	
		LOW	HIGH
UNIT 1: MAINE			
National Park Service	10	\$159,000	\$159,000
Maine Dept. of Conservation	359	\$16,500,000	\$25,100,000
Private Timber Lands	5,377	\$185,000,000	\$212,000,000
Conservation NGO	42	\$543,000	\$543,000
Unknown Landowner	4,123	\$244,000,000	\$339,000,000
Baxter State Park	128	\$2,270,000	\$2,270,000
SUBTOTAL UNIT 1	10,157	\$450,000,000	\$581,000,000
AVERAGE PER ACRE VALUE OF FUTURE DEVELOPMENT IN UNIT 1		\$44,300	\$57,200
UNIT 2: MINNESOTA			
Private Mining Lands	8,862	\$24,300,000	
Private Timber Lands	11,797	\$31,900,000	
Unknown Landowner	530,101	\$1,504,000,000	
SUBTOTAL UNIT 2	550,760	\$1,560,000,000	
AVERAGE PER ACRE VALUE OF FUTURE DEVELOPMENT IN UNIT 2		\$2,830	
UNIT 3: NORTHERN ROCKY MOUNTAINS			
U.S. Fish and Wildlife Service	792	\$329,000	
Montana Dept. of Natural Resources	188	\$1,900,000	
Montana Fish, Wildlife, and Parks	85	\$579,000	
Montana University System	10	\$45,300	
Private Timber Lands	52	\$744,000	
Conservation NGO	64	\$347,000	
Unknown landowner	124,203	\$113,000,000	
U.S Bureau of Land Management	26	\$14,400	
SUBTOTAL UNIT 3	125,420	\$117,000,000	
AVERAGE PER ACRE VALUE OF FUTURE DEVELOPMENT IN UNIT 3		\$932 (\$120 in Powell County and \$5,700 in other areas)	
Note: Totals may not sum due to rounding.			

77. In addition to the values reported above of future development in the proposed critical habitat, Tribal lands in Maine considered for exclusion are estimated to have a value of future development of \$1.57 million.
78. The per-acre value associated with future development is comparable in Units 2 and 3. The per-acre values are significantly higher in Maine, however. This is explained in part by the characteristics of developable lands in Maine. Specifically, most of the land zoned for development in Maine is lakefront property. Further, the scarcity of acres currently zoned for future development in Maine likely contributes to the high per-acre values.
79. As the study area in Unit 4 in Washington is characterized by public lands managed for timber and recreation, development is not considered a likely future land use and the value of these lands for future development is considered negligible.

4.2 METHODS AND ASSUMPTIONS

80. This analysis describes the value of future residential, commercial, or industrial developments, and expansions of existing developments that may occur within the undeveloped habitat areas for the lynx. Existing development, such as "towns, or human-made structures such as buildings, airports, paved and gravel roadbeds, active railroad beds, and other structures that lack the [primary constituent elements] PCEs for the lynx" are not included in the study area.⁴⁹ Activities such as reconstruction or maintenance of existing developments are therefore not expected to affect the lynx or the PCEs on which it depends, and are therefore not expected to be impacted by lynx conservation.
81. The conceptual framework for estimating the full development value for a parcel of land is based on the theoretical models developed by Capozza and Li (1994) and Capozza and Helsley (1990).^{50,51} Capozza and Helsley's study demonstrates that the price of agricultural land has three components: the value of agricultural rents, the growth premium, and the option value of potential development.
82. This analysis applies this logic to the forested lands within the study area by assuming that the price of land in the study area is comprised similarly of:
 1. The value of silvicultural rents - This represents the value of land as a silvicultural input and generally reflects the commercial present value of the trees.
 2. The growth premium - This equals the present value of expected increases in land rents after being converted to development.
 3. The option value of potential development - This is the value of land derived from the option of future development.

⁴⁹ 70 FR 68304-5

⁵⁰ Capozza, D.R. and Yuming Li. "The Intensity and Timing of Investment: The Case of Land." *The American Economic Review*, Vol. 84, No. 4 (Sep., 1994):889:904.

⁵¹ Capozza, D. R. and R.W. Helsley. "The Stochastic City," *Journal of Urban Economics* 28(1990):187-203.

83. It follows that if development of a parcel of silvicultural land is restricted, it will be worth less than its value in the previously unrestricted state. This reduction in value is a cost to the landowner, with the magnitude of reduction depending on the type of land use restriction imposed. If future development is precluded from a parcel, the reduction in land value equals the sum of growth premium and option value.
84. In some cases, land use information indicates that silviculture is not a possible land use. This may be true, for example, where the tree species mix has negligible commercial value. In such cases, this analysis assumes that the only potential future use of the parcel is for development, and therefore that the full price of the land reflects only its development option and growth premium.
85. In order to estimate the full value associated with development of a land parcel, this analysis applies three steps. A unit by unit discussion of this process is detailed in the following section.
 1. **Identify potentially developable lands within each unit.** Information from the U.S. Census Bureau regarding growth in building permits issued between 1990 and 2000 was consulted to help identify areas with development pressure. Data specifying areas zoned or dedicated for future development in each unit was then referenced to isolate the land parcels that may experience reduced values if development is restricted.
 2. **Estimate region-specific land prices for each developable parcel in the study area.** A mix of data on appraisals and recent land sales from state agencies and local appraisers was analyzed to determine prices of developable parcels.
 3. **Isolate the proportion of land value derived from the growth premium and option value for each parcel.** The method used to approximate the development option and growth premium value varies by unit across the study area depending on zoning and dedicated future land uses. Where developable land may also have silviculture value, the value of silvicultural rents is estimated and subtracted from the total land value; where the only future land use is development, the full value of the parcel is assumed to be the growth premium and the option value for development.
86. Applying this method assumes that if silviculture is not a possible land use, the full value of that land is the development value. That is, the underlying land value (outside of its potential uses) is relatively insignificant. Silviculture may not be a future land use, for example, for lands on which the tree species mix has a negligible commercial value.
87. The method applied in this analysis does not account for potential changes in future zoning across the study area. The values provided represent the value of developing unimproved parcels that are zoned or identified for development in each of the units by state and local planning agencies. However, this analysis does consider development pressure, indicated by changes in population levels and housing units from 1990 to 2000 in Census groups across the region, to determine the likelihood of major re-zoning to accommodate growth. Generally, however, the relatively rural character of the study area

does not suggest that significant levels of re-zoning are necessary to accommodate development pressure.

88. An exception to this assumption may occur in Maine. According to information from Maine's Land Use Regulatory Commission, 10,157 acres within the study area in Maine are currently zoned for development; these all occur along the shores of lakes. While development in the unincorporated region of Maine has been sparse in the past, the future development potential of this region is uncertain.⁵²

⁵² Personal communication with Catherine Carroll, Land Use Regulatory Commission, March 20, 2006.

Plum Creek Timber Company Comments on Development

A public comment provided by Plum Creek Timber Company on the Proposed Rule included information on the development value of their lands within the proposed critical habitat area in Maine and Montana (Plum Creek Analysis).^a The comment provided by Plum Creek provides the same type of information as this analysis developed for the Fish and Wildlife Service (FWS Analysis), the value of the lands for the option for future development; both the FWS Analysis and the Plum Creek Analysis provide this full value in place of an economic impact estimate in recognition of the uncertainty regarding how the designation of critical habitat will alter future development. A difference between the Plum Creek Analysis and the FWS Analysis is that the FWS Analysis does not specifically isolate particular landowners, such as Plum Creek, but rather presents impacts on "private timber company" lands collectively.

Roughly half of Plum Creek's lands in Maine, 545,000 acres fall within the proposed critical habitat for the lynx. Plum Creek is in the process of converting a portion of its timber holdings in Maine for development and recreational uses in the Moosehead Lake region. Plum Creek estimates that approximately 200,000 acres of the Moosehead project may be affected by the critical habitat designation. Details of the proposed project are provided in Plum Creek's public comment. To estimate the value of development for these lands in Maine, Plum Creek cites a recent report from the Open Space Institute (OSI Report).^b The OSI Report assumes that shorefront lots appreciate in value at eight percent per year for ten years and four percent per year thereafter, and Plum Creek applied a 15 percent discount rate to estimate the total present value of its future development at Moosehead Lake at \$43.2 million. As mentioned, while this FWS Analysis does not specifically present the development value of Plum Creek lands, it does estimate the development value of the lands surrounding Moosehead Lake, applying parcel-specific values in this region of between \$121,000 and \$212,000 per acre as described in Exhibit 4-3. These estimates of development value are comparable to the market values for these acres around Moosehead Lake as estimated in the OSI Report used by Plum Creek, \$175,000 to \$200,000 (OSI, pg. 8).

In Montana, Plum Creek owns approximately 413,467 acres of land within the proposed critical habitat. To estimate the development value of their lands in Unit 3, Plum Creek calculates the difference in current land prices between entitled and unentitled land, or land that only has timber value; in other words, Plum Creek applies the same method as applied in this FWS analysis as described above. The Plum Creek Analysis estimates a development value of \$261 million for their lands in Montana (undiscounted), a per acre value of about \$633. The FWS analysis estimates an average per acre value of development for lands in Montana of \$932 as described in Exhibit 4-1. Considering the variation in land values across the landscape depending on site-specific amenities, the values provided by Plum Creek do not contradict those estimated in this FWS Analysis.

Overall, the comments provided by Plum Creek are comparable to the methods and results provided in this FWS Analysis.

^a Plum Creek Timber Company comments prepared with assistance from Dr. David L. Sunding (Senior Consultant at CRA International) and Kristina Sepetys (Senior Consultant at NERA Economic Consulting), Economic Comments: Proposed Designation of Critical Habitat for the Canada Lynx on Plum Creek Lands in Maine and Montana, April 2006.

^b Industrial Economics, Inc., prepared for Open Space Institute, Plum Creek Financial Model: Discussion Paper No. 2, March 15, 2006 accessed at <http://www.osiny.org/>.

4.3 UNIT BY UNIT ANALYSIS

89. This analysis employed the best available data in each geographic region of the study area to estimate the number of developable acres and the development value of those acres.

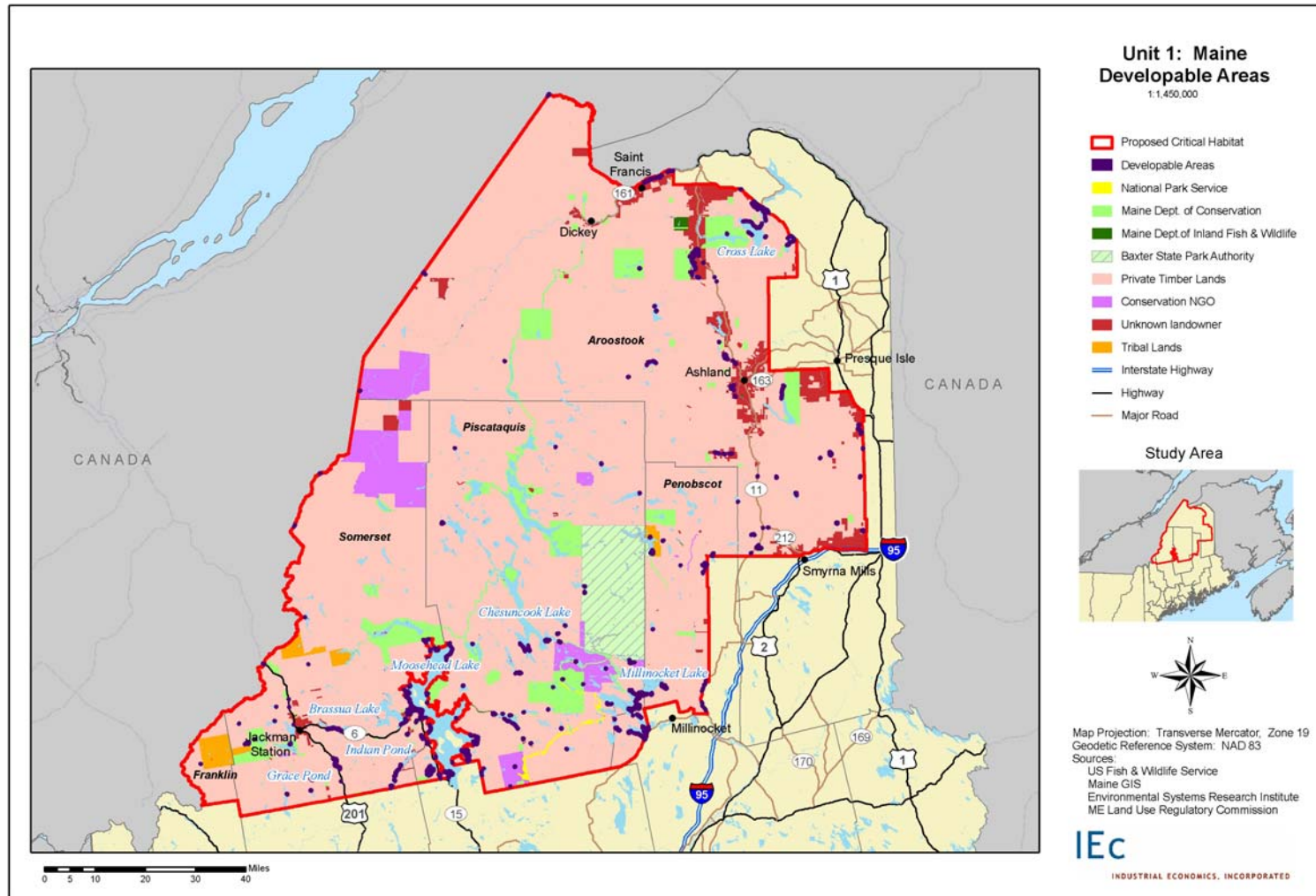
4.3.1 UNIT 1: MAINE

90. Maine's Land Use Regulatory Commission (LURC) has been the zoning and planning agency for the unincorporated area of Maine since 1971; the entirety of the study area in Maine is within LURC's jurisdiction. All developments occurring within LURC's jurisdiction, from small camplot developments to re-zoning efforts, must be permitted by LURC. Thirty-nine towns and plantations (similar to municipalities) exist within LURC's jurisdiction. LURC is the code enforcement officer for these areas. These 39 areas tend to be populated but the remainder of the jurisdiction is unpopulated. The Rangely region, next to the town of Rangely, experiences the greatest development pressure and generates close to one-third of LURC's permitting workload.
91. In Maine, developable areas were identified using GIS data provided by LURC that characterized land use zoning across the landscape.⁵³ According to these data, land parcels that were zoned for development and for which no data were included on the value of buildings/infrastructure were assumed to be undeveloped parcels amenable to future development.⁵⁴ Exhibit 4-2 maps these parcels zoned for development across the subunits in Maine. These parcels are small and scattered across the region. Some parcels within public lands are zoned for development; these may be private inholdings or they may be expected to experience development associated with public land uses (e.g., for buildings or infrastructure to support recreation). As described in Exhibit 4-1, there are 10,157 acres characterized as developable in the study area in Unit 1.

⁵³ LURC GIS data was received on April 19, 2006 from Ellen Jackson, LURC GIS Coordinator. The data consisted of a LURC zoning layer ("lurczones.shp") and a LURC-defined parcel layer for all counties within the study area. This method of identifying developable acres was approved by MRS.

⁵⁴ This assumption was considered to be reasonable according to LURC and the Maine Revenue Service.

EXHIBIT 4-2. DISTRIBUTION OF DEVELOPABLE ACRES IN UNIT 1: MAINE



92. This analysis considers areas zoned for development within a 250 foot buffer of a major lake as "water front", and others are defined as "inland".⁵⁵
93. For water front land values, the Maine Revenue Service (MRS) is in the process of appraising land across the unincorporated portion of Maine. MRS provided "front-foot values" (the value of a foot of shore frontage) for all lakes near parcels zoned for development in the study area.⁵⁶ Based on the front-foot length and corresponding parcel acreage, this analysis derived a per-acre value of developable waterfront land.
94. The resulting per-acre waterfront values are lake-specific and, for larger lakes, variances exist in waterfront property value at different locations along the lakefront (e.g., Moosehead and Millinocket Lake). These variances in land value are driven by the existence of amenities such as road access and proximity to developed areas.⁵⁷ Exhibit 4-3 describes the values per acre of lakefront parcels by lake.

EXHIBIT 4-3. VALUES PER ACRE OF WATERFRONT PARCELS IN MAINE BY LAKE

LAKE	VALUE PER ACRE OF WATERFRONT
Attean Pond	\$104,000
Brassua Lake	\$70,000
Chesuncook Lake	\$109,000
Cross Lake	\$73,000
Grace Pond	\$21,300
Indian Pond	\$349,000
Long Pond	\$80,500
Millinocket Lake	\$19,800 - \$25,000
Moose River	\$229,000
Moosehead Lake	\$121,000 - \$212,000
"Other Small Ponds"	\$21,300
Source: Written communication with Bob Doiron, Supervisor of Unorganized Territories at the Maine Revenue Service, April 26, 2006.	

⁵⁵ Front-foot values are measured within 250 ft. from the shoreline. Therefore, the analysis considers all land within 250 ft. "waterfront" and all lands beyond 250 ft. "inland". Personal communications with Bob Doiron, Maine Revenue Service, April 24, 2006.

⁵⁶ Written communication with Bob Doiron, Supervisor of Unorganized Territories at the Maine Revenue Service, on April 26, 2006. Communication included front-foot values for the following water bodies: Attean Pond, Brassua Lake, Chesuncook Lake, Cross Lake, Grace Pond, Indian Pond, Long Pond, Millinocket Lake, Moose River, and Moosehead Lake.

⁵⁷ Personal communication with Bob Doiron, Supervisor of Unorganized Territories at the Maine Revenue Service, April 26, 2006.

95. For inland acres zoned for development, this analysis applies a parcel-specific value as appraised by the MRS. These appraisal data were provided by LURC.⁵⁸
96. In order to isolate the portion of the total land value associated with its future development, this analysis subtracts the per acre value of silvicultural rents from the total value per acre. The per acre value of silvicultural rents was based on MRS tax appraisal data provided by LURC for which land values were estimated for parcels in the northwestern portion of LURC's jurisdiction where silviculture is the only current and likely future land use. The estimated value per acre of strictly silvicultural land is \$300.⁵⁹ Subtracting the timber value of the developable acres provides the per acre development value of the land.
97. Summing these estimates across acres currently zoned for development in the study area in Maine results in a total development value of Unit 1 of \$450 million to \$580 million. This translates to an average per acre value of development of \$44,300 to \$57,200.
98. A primary uncertainty associated with the development analysis in Maine is the estimated acreage which may be subject to development in the future. First, while this analysis estimates value only of parcels zoned for development, under LURC's current permitting guidelines, it is possible for limited development to occur in some protected areas. Concentrations of development are only permitted in acres that are zoned for development, and very minor levels (i.e., one dwelling per protected zone) of development may occur in protected areas.⁶⁰
99. Additionally, this analysis does not account for potential re-zonings in the future. LURC has permitted re-zonings in the past where it was demonstrated that the proposed development was consistent with the standards in the district and with the Commission's Comprehensive Land Use Plan's (1997) Goals and Policies. That is, if a petitioner is seeking re-zoning of an area for development, (s)he must assure orderly growth and no sprawl. The proposed land use must also demonstrate filling a need in the community and area, and must also have no undue impact on existing uses and resources.⁶¹
100. For example, Plum Creek Timber Company has proposed a long term development plan for 426,000 acres in the Moosehead Lake Region of Maine that includes re-zoning for development. This project is located in the study area. The proposed development project is currently being modified by Plum Creek, but originally included 380,000 acres for timber harvest, connection of recreation to conservation lands via trail construction,

⁵⁸ LURC sent IEC a database file containing MRS appraisal data with ID numbers matching those on LURC parcel polygons, received on April 19, 2006 from Ellen Jackson, LURC GIS Coordinator.

⁵⁹ MRS appraisal data provided by LURC on April 19, 2006 provided a per acre value of timberland of \$200, and subsequent communication with Bob Doirion, Supervisor of Unorganized Territories at MRS on April 26, 2006 suggested that timberland value likely ranges from \$200 to \$400 per acre. This value range was also corroborated by Tim Glidden, Land for Maine's Future (personal communication on April 27, 2006). This analysis therefore applies the average estimate of \$300 per acre.

⁶⁰ Personal communication with Catherine Carroll, Land Use Regulatory Commission, March 20, 2006.

⁶¹ Maine Land Use Regulatory Commission, Comprehensive Land Use Plan For Areas Within the Jurisdiction of the Maine Land Use Regulatory Commission, as amended in 1997, accessed at <http://www.maine.gov/doc/lurc/reference/clup.html>.

development of 975 residential lots in clusters, 1,000 acres of commercial development, 100 acres for affordable housing, as well as 180 miles of shore land to be preserved as conservation land.⁶²

101. The implications of the Plum Creek lake concept plan on the future of development in Maine is uncertain. LURC has indicated that if the Plum Creek Moosehead proposal is approved, more lake concept plans are likely to be proposed in the future in this region, which may change the landscape in terms of future development and conservation areas.⁶³

4.3.2 UNIT 2: MINNESOTA

102. As information is unavailable regarding which parcels are specifically zoned for future development in the study area in Minnesota, this analysis applied a number of assumptions to identify which parcels may be developable. First, this analysis removed from consideration all publicly administered lands, including county, Federal, State, and Tribal lands.⁶⁴ These public lands are primarily managed for timber, wildlife, and recreational uses and are considered in other sections of this analysis accordingly. Next, lands which were already developed were removed from consideration; specifically, based on aerial photography, this included a ten mile buffer around Duluth and a one-mile buffer along the coast of Lake Superior, where existing development in Unit 2 is concentrated.⁶⁵ The remaining acres in the study area are considered developable in this analysis as highlighted in Exhibit 4-4. As described in Exhibit 4-1, there are 550,760 acres characterized as developable in Unit 2.

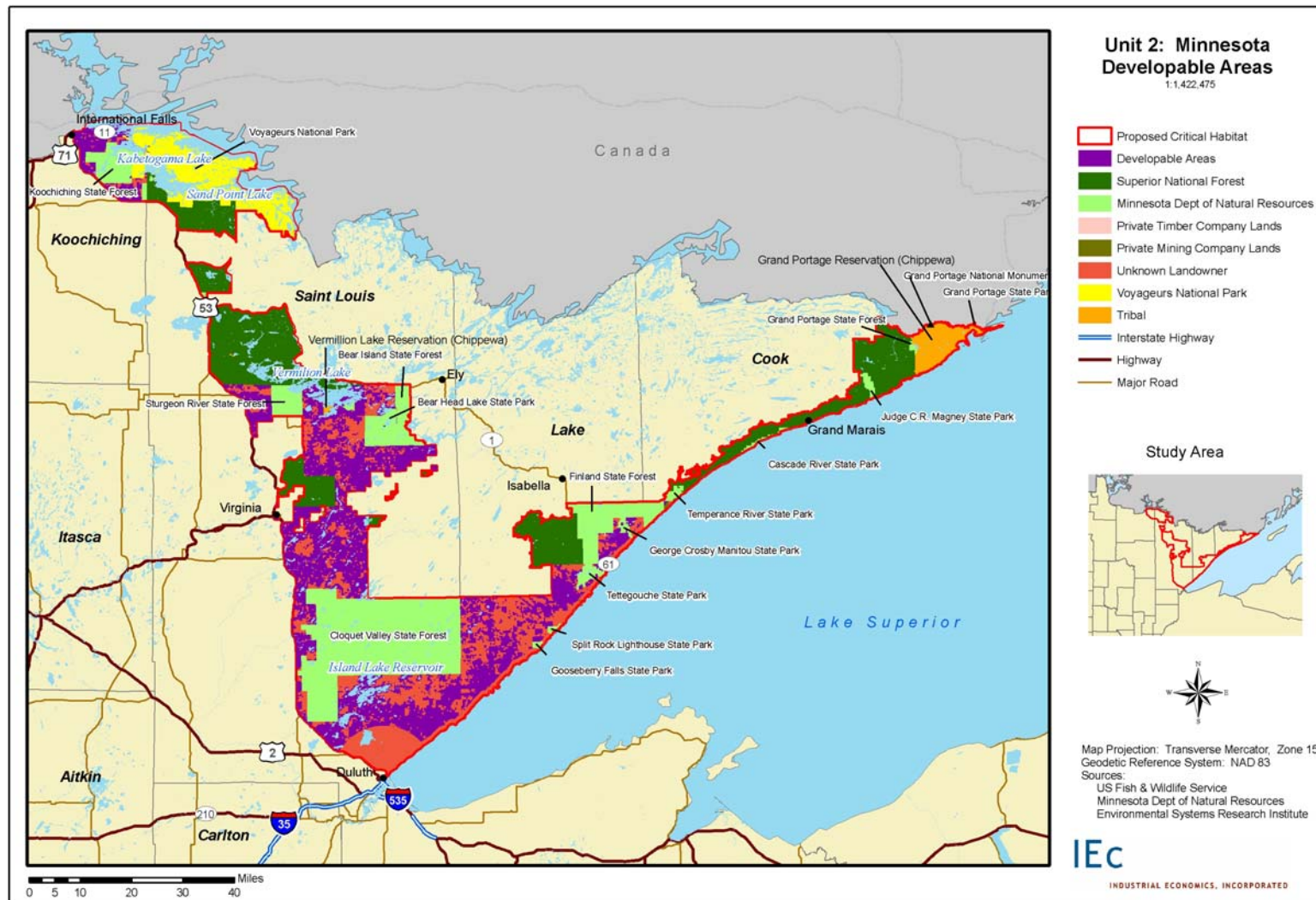
⁶² Plum Creek, "Plum Creek's Plan for the Moosehead Region of Maine," accessed at www.plumcreek.com, January 18, 2006.

⁶³ Personal communication with Catherine Carroll, Land Use Regulatory Commission, March 20, 2006.

⁶⁴ The following GIS layers were used to represent all publicly owned and administered lands: GAP- County Lands; GAP- Miscellaneous State Lands; GAP- Federal Lands; GAP- Tribal Lands; All " State Land Ownership" files. The files were obtained from MN DNR's Data Deli GIS data clearinghouse, accessed at <http://deli.dnr.state.mn.us/> on April 13, 2006.

⁶⁵ The 10-mile buffer around Duluth is consistent with review of housing unit density based on 2000 U.S. Census Block Group data (U.S. Census Bureau, American Factfinder. Decennial Census (2000). Datasets accessed at: http://factfinder.census.gov/servlet/DownloadDatasetServlet?_lang=en.

EXHIBIT 4-4. DISTRIBUTION OF DEVELOPABLE ACRES IN UNIT 2: MINNESOTA



103. Similar to the Maine analysis, per-acre total values for developable lands minus the value of timber describe the per acre development value of the land. These per acre total values of land are from St. Louis County's Parent Land Sales Database.⁶⁶ The database contains all transactions for empty lots from years 2003-2006 and includes information on sale price, lot acreage, sale date, type of land transferred (i.e. residential, commercial, farmland, timberlands, etc.), lake frontage details, and section, range, and township information. The data were filtered for townships that fall within the boundaries of proposed critical habitat and categorized as "timber", "private", or "private waterfront". Per-acre values for each category were estimated using a weighted average of the values of the total acreage transacted from 2003 to present. For the "timber", "private", and "private waterfront" classifications, 303, 232, and 1043 data points respectively were used to generate the average per acre value.
104. As with Maine, all lands within 250 feet of a major water body were considered "waterfront". Average values for the three land types were estimated as follows:
- Private - \$2,800 per acre
 - Private Waterfront - \$12,600 per acre
 - Timber - \$880 per acre
105. Geo-coded zoning information from St. Louis County GIS was used to determine where land may be managed for timber in order to identify where it was appropriate to subtract the per-acre value of silviculture rents approximated by the full value of acres for which the sole land use is silviculture (\$880) from the total value of the acre in order to determine the per-acre value of development.⁶⁷ Where silviculture was not identified as a viable land use, this analysis assumes the full value of the parcel is its value for development.
106. Summing these estimates across developable acres in the study area in Minnesota results in a total development value of Unit 2 of \$1.56 billion. This translates to an average per acre value of development of approximately \$2,800.

4.3.3 UNIT 3: NORTHERN ROCKY MOUNTAINS

107. To identify "developable" acres for the Northern Rockies Unit, this analysis applied data from the Montana Cadastral Database, a GIS parcel layer published by the Montana Department of Administration, Information Technology Services Division on April 17,

⁶⁶ St. Louis County Parent Land Sales Database. Received from John Gellatly, Principal Appraiser, St. Louis County Assessor's Office, April 26, 2006.

⁶⁷ St. Louis County GIS Zoning Layer. Received from Bruce Grohn, GIS Specialist, St. Louis County Planning Department, April 20, 2006.

2006. The data describe land ownership for taxable parcels (fee land) and public land (exempt property) for the entire state of Montana.⁶⁸

108. To isolate undeveloped lands in the study area, all parcels clearly defined as public lands were removed from the dataset. Private inholdings within public lands, however, were not removed from the dataset and are included in the development analysis. The database was then filtered for "vacant" parcels to isolate undeveloped land. The remaining parcels were then divided into lands managed for timber and those that were privately owned.
109. Parcels were considered to have silvicultural value where the property type was defined as "agricultural rural" or "agricultural urban" and nonzero values were identified for "timber acreage type".⁶⁹ Parcels considered to be privately owned are all non-timber managed parcels; that is, silviculture is not considered a viable land use of these parcels.
110. The resulting layer, containing empty, privately-owned lots (divided into "timber" and "private" categories) were then spatially joined by subunit to estimate the number of developable acres by landowner type. These "developable" lands are highlighted in Exhibit 4-5. As described in Exhibit 4-1, there are 125,420 acres characterized as developable in Unit 3.
111. Examination of the identified developable parcels in Unit 3 highlights that over 75 percent fall within Powell County, Montana. Powell County zoning regulations were changed in 1996 to define allowable lot sizes (in some areas at 160 acres) to discourage second home development and avert rural sprawl.^{70,71} Because this results in a marked difference in per acre values of developable land between Powell County and the remainder of the study area in Unit 3, this analysis estimates per acre values of developable land in two categories:
 - Powell County - \$120 per acre
 - Other - \$5,710 per acre

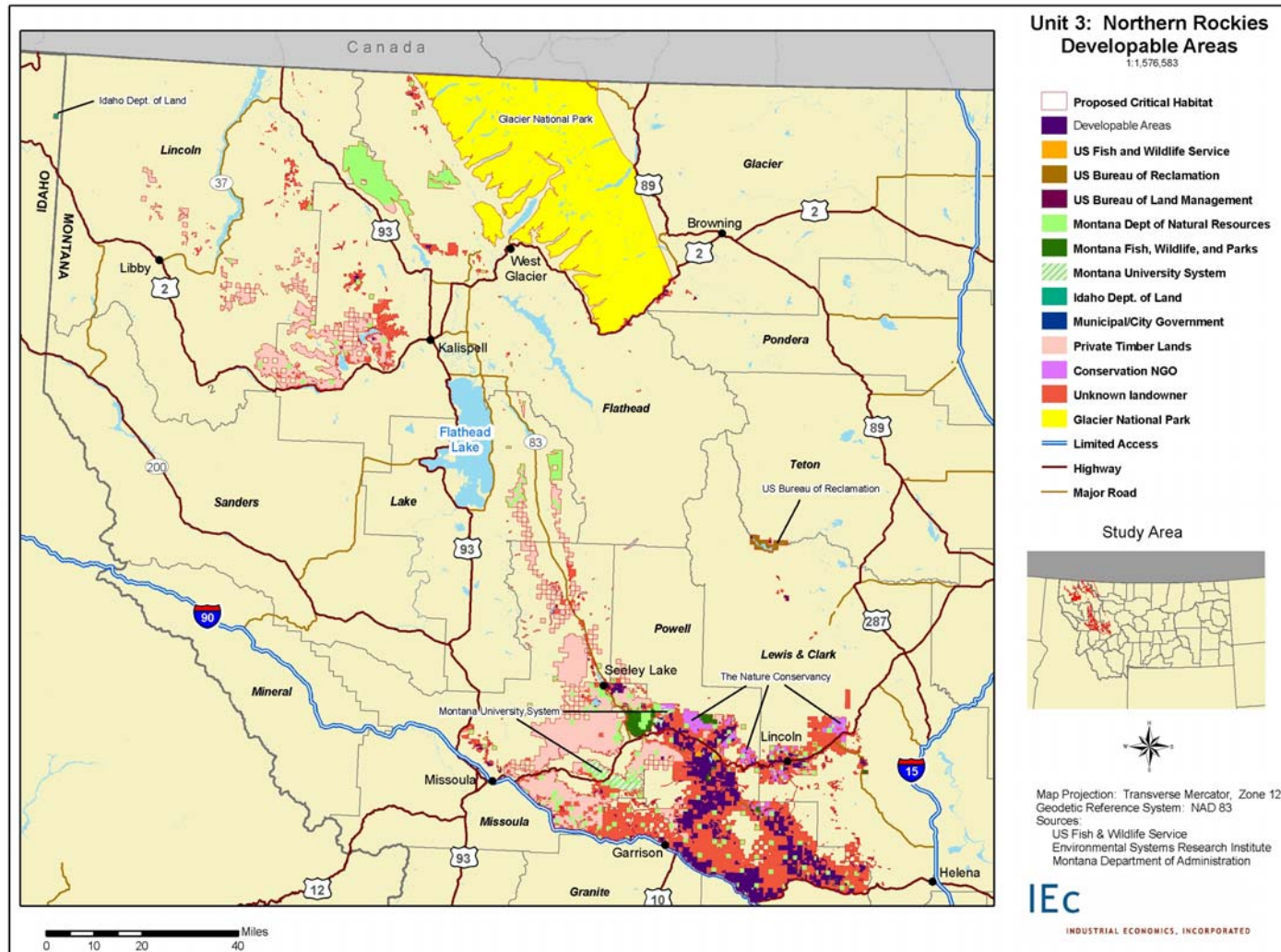
⁶⁸ Montana Natural Resource Information System (NRIS), GIS Datalab accessed, April 18, 2006 at <http://nris.mt.gov/gis/gisdatalib/gisDataList.aspx>.

⁶⁹ The property type attribute "agricultural rural" or "agricultural urban" describes agricultural/timber land located in incorporated and unincorporated areas of the county. The acreage type classification of "timber" denotes forest lands exceeding 15 contiguous acres that is capable of producing timber that can be harvested in commercial quantity. (<http://gis.mt.gov/InfoHtm/ValueInfo.htm>)

⁷⁰ County of Powell, Powell County Development Regulations, as amended in November 2000, accessed at <http://www.mtsmartgrowth.org/CS&Rpub/Ordinances/Powell%20County%20Development%20Regulations.pdf>, May 1, 2006.

⁷¹ Montana Smart Growth Coalition, Powell County Development Regulations, accessed at <http://www.mtsmartgrowth.org/CS&Rpub/CS/Powell.doc>, May 1, 2006.

EXHIBIT 4-5. DISTRIBUTION OF DEVELOPABLE ACRES IN UNIT 3: NORTHERN ROCKY MOUNTAINS



112. These values were derived by taking a weighted average per acre value in the two areas of the total 2005 taxable market value as identified in the Montana Cadastral Database. As the identified developable acres are not viable silvicultural lands, this analysis assumes the full value of these lands is their development option.
113. Summing these estimates across developable acres in the study area in Unit 3 results in a total development value of \$117 million. This translates to an average per acre value of development of approximately \$932.